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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/609,289	06/27/2003	M. Tim Jones	491442001700	7891

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EXAMINER	
PANNALA, SATHYANARAYA R	
ART UNIT	**PAPER NUMBER**
2177	

DATE MAILED: 09/09/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/609,289	JONES ET AL.	
	Examiner	Art Unit	
	Sathyanarayan Pannala	2177	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *27 June 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,2,4,5,7-10,12,13,15,16,18-21 and 23* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,2,4-5,7-10,12-13,15-16,18-21 and 23* is/are rejected.

7)☐ Claim(s) *3,6,11,14,17,22 and 24* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

1. The Application 10/609289 filed on 6/27/2003 has been examined. Claims 1-24 are pending in this Office Action.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1, 7, 12 and 18 are rejected under 35 U.S.C. 102(b) as being anticipated by Callon (US Patent 5,430,727).

4. As per independent claim 1, Callon teaches a method for connecting a network so that TCP/IP and OSI8473 packets may be routed in the same domain and each of the user data packets includes destination address information conforming to an address convention of a protocol. Callon teaches the claimed step of "receiving a data packet" as a user data packet addressed to an end system Z, the receiving router first reviews (step 104) the Link State Packet (LSP) it has stored to determine if there is a router that has been connected to end system Z. For example, router A is connected to

end system Z, then the router A checks is end system Z is connected and if connected the packet will be delivered (Fig. 1B, col. 11, lines 15-31). Further, Callon teaches the claimed step of "reading a first sequence number from the received data packet" as the sequence number is a part of the user data packet format is read to check the most recent packet is received by the router (col. 41, lines 41-46). The following three limitations claimed are pertaining to a receiver and they are same as in the prior art pertaining to a router. Further, Callon teaches the claimed step of "determining whether the first sequence number is contiguous with a sequence number range contained in a first preexisting node of a tree data structure, wherein the tree data structure is stored in a memory coupled to the receiving device" as the similar step 182, the neighbors of the router forming the routing tree are placed below the root node (Fig. 4A, 8B, col. 34, lines 17-24). Further, Callon teaches the claimed step of "if the new sequence number is not contiguous with the sequence number range, creating a new node that contains the new sequence number" as each neighbor is checked to see if a tentative node for the neighbor already exists (step 342). If not, a new node is added by sequencing to step 348, again this step is similar to the claimed step (Fig. 8B, col. 34, lines 25-27). Finally, Callon teaches the claimed step of "if the new sequence number is contiguous with the sequence number range, updating the first preexisting node such that the new sequence number becomes a new boundary value for the sequence number range contained in the first preexisting node" as when a tentative node already exists, then the cost of the existing path is compared to the new path (step 344). If the new path is shorter, the old tentative is deleted (step 346) and the new tentative is added and the

next is step 348. If the new path is longer, the new path is ignored and the next is step 360, again these step are pertaining to router whereas the claimed step is for receiving packets (Fig. 8B, col. 34, lines 27-33).

5. As per independent claims 7 and 18, Callon teaches a method for connecting a network so that TCP/IP and OSI8473 packets may be routed in the same domain and each of the user data packets includes destination address information conforming to an address convention of a protocol. Callon teaches the claimed step of "receiving a data packet" as a user data packet addressed to an end system Z, the receiving router first reviews (step 104) the Link State Packet (LSP) it has stored to determine if there is a router that has been connected to end system Z. For example, router A is connected to end system Z, then the router A checks is end system Z is connected and if connected the packet will be delivered (Fig. 1B, col. 11, lines 15-31). Further, Callon teaches the claimed step of "reading a new sequence number from the received data packet" as the sequence number is a part of the user data packet format is read to check the most recent packet is received by the router (col. 41, lines 41-46). The following limitations claimed are pertaining to a receiver and they are same as in the prior art pertaining to a router. Further, Callon teaches the claimed step of "determining whether the new sequence number is contiguous with a sequence number range contained in a first preexisting node of a binary tree stored in a memory coupled to the receiving device" as in step 182, the neighbors of the router forming the routing tree are placed below the root node (Fig. 4A, 8B, col. 34, lines 17-24). Further, Callon teaches the claimed step of

"if the new sequence number is not contiguous with the sequence number range, creating a new node that contains the new sequence number" as each neighbor is checked to see if a tentative node for the neighbor already exists (step 342). If not, a new node is added by sequencing to step 348, again this step is similar to the claimed step (Fig. 8B, col. 34, lines 25-27). Further, Callon teaches the claimed step of "if the new sequence number is contiguous with the sequence number range, updating the first preexisting node such that the new sequence number becomes a new boundary value for said sequence number range contained in the first preexisting node" as when a tentative node already exists, then the cost of the existing path is compared to the new path (step 344). If the new path is shorter, the old tentative is deleted (step 346) and the new tentative is added and the next is step 348. If the new path is longer, the new path is ignored and the next is step 360, again these step are pertaining to router whereas the claimed step is for receiving packets (Fig. 8B, col. 34, lines 27-33). Finally, Callon teaches the claimed step of "determining if the first preexisting node, after it has been updated, contains a sequence number range that is contiguous with a sequence number range of a second preexisting node and if the sequence number range of the first preexisting node, after it has been updated, is contiguous with the sequence number range of the second preexisting node, merging the first and second preexisting nodes into a single node that contains a new contiguous range that includes the previous ranges represented by the first and second preexisting nodes prior to their merger" as when a tentative node already exists, then the cost of the existing path is compared to the new path (step 344). If the new path is shorter, the old tentative is

deleted (step 346) and the new tentative is added and the next is step 348. If the new path is longer, the new path is ignored and the next is step 360, again these step are pertaining to router whereas the claimed step is for receiving packets (Fig. 8B, col. 34, lines 27-33).

6. As per independent claim 12 (this claim is for a system), Callon teaches a method for connecting a network so that TCP/IP and OSI8473 packets may be routed in the same domain and each of the user data packets includes destination address information conforming to an address convention of a protocol. Callon teaches the claimed step of "reading a new sequence number from a newly received data packet" as the sequence number is a part of the user data packet format is read to check the most recent packet is received by the router (col. 41, lines 41-46). The following limitations claimed are pertaining to a receiver and they are same as in the prior art pertaining to a router. Further, Callon teaches the claimed "determining whether the new sequence number is contiguous with a sequence number range contained in a first preexisting node of a tree data structure stored in a memory coupled to the receiving device" as in step 182, the neighbors of the router forming the routing tree are placed below the root node (Fig. 4A, 8B, col. 34, lines 17-24). Further, Callon teaches the claimed "creating a new node that contains the new sequence number if the new sequence number is not contiguous with the previous sequence number" as each neighbor is checked to see if a tentative node for the neighbor already exists (step 342). If not, a new node is added by sequencing to step 348, again this step is similar to the claimed step (Fig. 8B, col. 34, lines 25-27). Finally, Callon teaches the claimed step of

"updating the first preexisting node such that the new sequence number becomes a new boundary value for the sequence number range contained in preexisting node if the new sequence number is contiguous with the sequence number range" as when a tentative node already exists, then the cost of the existing path is compared to the new path (step 344). If the new path is shorter, the old tentative is deleted (step 346) and the new tentative is added and the next is step 348. If the new path is longer, the new path is ignored and the next is step 360, again these step are pertaining to router whereas the claimed step is for receiving packets (Fig. 8B, col. 34, lines 27-33).

7. Claim 23 is rejected under 35 U.S.C. 102(b) as being anticipated by Bialkowski et al. (US Patent 5,463,777) hereinafter Bialkowski.

8. As per independent claim 23, Bialkowski teaches a method for processing the information containing portions of the data packet to be processed using the binary tree table for determining the processing to be used for the packet (col. 1, lines 48-52). Bialkowski teaches the claimed "lower boundary field for storing a minimum value of a contiguous range of sequence numbers" as the lower portion of the range (=boundary) of values (Fig. 3, col. 5, line 67). Further, Bialkowski teaches the claimed step of "an upper boundary field for storing a maximum value of the contiguous range" as the upper portion of the range (=boundary) of values (Fig. 3, col. 6, lines 1). Further, Bialkowski teaches the claimed step of "a left pointer field for storing a value that identifies an adjacent node containing a lower contiguous range of sequence numbers" as the left

child node which represents a lower portion of the range (Fig. 3, col. 5, lines 66-67). Finally, Bialkowski teaches the claimed step of "a right pointer field for storing a value that identities another adjacent node containing a higher contiguous range of sequence numbers" as the right child node represents the upper portion of the range (Fig. 3, col. 6, line 1).

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.
>
> This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

10. Claims 2, 8,13 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Callon (US Patent 5,430,727) and in view of Bialkowski et al. (US Patent 5,463,777) hereinafter Bialkowski.

11. As per dependent claim 2, Callon teaches using binary string analogous to the claimed (col. 26, lines 30-40). However, Bialkowski teaches the claimed step of "lower boundary field for storing a minimum value of a contiguous range of sequence numbers" as the lower portion of the range (=boundary) of values (Fig. 3, col. 5, line 67). Further, Bialkowski teaches the claimed step of "an upper boundary field for storing a maximum value of the contiguous range" as the upper portion of the range (=boundary) of values (Fig. 3, col. 6, lines 1). Further, Bialkowski teaches the claimed step of "a left pointer field for storing a value that identifies an adjacent node containing a lower contiguous range of sequence numbers" as the left child node which represents a lower portion of the range (Fig. 3, col. 5, lines 66-67). Finally, Bialkowski teaches the claimed step of "a right pointer field for storing a value that identities another adjacent node containing a higher contiguous range of sequence numbers" as the right child node represents the upper portion of the range (Fig. 3, col. 6, line 1). Thus, it would have been obvious to one of ordinary skill in the data processing art at the time of the invention to combine the teaching of the cited references because Bialkowski's teachings would have allowed Callon's method for determining whether a range of values or specific vale has been found and filtering operation to be applied to the range of values in order to avoid using excessive memory, the binary tree table can be stored as a "look up table" (col. 6, lines 22-24).

12. As per dependent claim 8, Callon teaches using binary string analogous to the claimed (col. 26, lines 30-40). However, Bialkowski teaches the claimed step of "a

lower boundary field for storing a minimum value of a contiguous range of sequence numbers" as the lower portion of the range (=boundary) of values (Fig. 3, col. 5, line 67). Further, Bialkowski teaches the claimed step of "an upper boundary field for storing a maximum value of the contiguous range" as the upper portion of the range (=boundary) of values (Fig. 3, col. 6, lines 1). Further, Bialkowski teaches the claimed step of "a left pointer field for storing a value that identifies an adjacent node containing a lower contiguous range of sequence numbers" as the left child node which represents a lower portion of the range (Fig. 3, col. 5, lines 66-67). Finally, Bialkowski teaches the claimed step of "a right pointer field for storing a value that identities another adjacent node containing a higher contiguous range of sequence numbers" as the right child node represents the upper portion of the range (Fig. 3, col. 6, line 1). Thus, it would have been obvious to one of ordinary skill in the data processing art at the time of the invention to combine the teaching of the cited references because Bialkowski's teachings would have allowed Callon's method for determining whether a range of values or specific vale has been found and filtering operation to be applied to the range of values in order to avoid using excessive memory, the binary tree table can be stored as a "look up table" (col. 6, lines 22-24).

13. As per dependent claim 13 (this claim is for s system), Callon teaches using binary string analogous to the claimed (col. 26, lines 30-40). However, Bialkowski teaches the claimed step of "lower boundary field for storing a minimum value of a contiguous range of sequence numbers" as the lower portion of the range (=boundary)

of values (Fig. 3, col. 5, line 67). Further, Bialkowski teaches the claimed step of "an upper boundary field for storing a maximum value of the contiguous range" as the upper portion of the range (=boundary) of values (Fig. 3, col. 6, lines 1). Further, Bialkowski teaches the claimed step of "a left pointer field for storing a value that identifies an adjacent node containing a lower contiguous range of sequence numbers" as the left child node which represents a lower portion of the range (Fig. 3, col. 5, lines 66-67). Finally, Bialkowski teaches the claimed step of "a right pointer field for storing a value that identities another adjacent node containing a higher contiguous range of sequence numbers" as the right child node represents the upper portion of the range (Fig. 3, col. 6, line 1). Thus, it would have been obvious to one of ordinary skill in the data processing art at the time of the invention to combine the teaching of the cited references because Bialkowski's teachings would have allowed Callon's method for determining whether a range of values or specific vale has been found and filtering operation to be applied to the range of values in order to avoid using excessive memory, the binary tree table can be stored as a "look up table" (col. 6, lines 22-24).

14. As per dependent claim 19 (this claim is for a system), Callon teaches using binary string analogous to the claimed (col. 26, lines 30-40). However, Bialkowski teaches the claimed step of "lower boundary field for storing a minimum value of a contiguous range of sequence numbers" as the lower portion of the range (=boundary) of values (Fig. 3, col. 5, line 67). Further, Bialkowski teaches the claimed step of "an upper boundary field for storing a maximum value of the contiguous range" as the upper

portion of the range (=boundary) of values (Fig. 3, col. 6, lines 1). Further, Bialkowski teaches the claimed step of "a left pointer field for storing a value that identifies an adjacent node containing a lower contiguous range of sequence numbers" as the left child node which represents a lower portion of the range (Fig. 3, col. 5, lines 66-67). Finally, Bialkowski teaches the claimed step of "a right pointer field for storing a value that identities another adjacent node containing a higher contiguous range of sequence numbers" as the right child node represents the upper portion of the range (Fig. 3, col. 6, line 1). Thus, it would have been obvious to one of ordinary skill in the data processing art at the time of the invention to combine the teaching of the cited references because Bialkowski's teachings would have allowed Callon's method for determining whether a range of values or specific vale has been found and filtering operation to be applied to the range of values in order to avoid using excessive memory, the binary tree table can be stored as a "look up table" (col. 6, lines 22-24).

15. Claims 4-5, 9-10, 15-16 and 20-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Callon (US Patent 5,430,727) and in view of Boyd et al. (US Patent 6,735,647) hereinafter Boyd.

16. As per dependent claims 4, 9, 15 and 20, Callon teaches sending data packets and does not explicitly teach checking of received data packets and obtaining missed data packets. However, Boyd teaches the claimed step of "determining if said data packet is a last packet of a data set" as the last packet position in the receive buffer and

other information is received by the protocol engine (Fig. 1, col. 5, lines 9-14). Further, Boyd teaches the claimed step of "if said data packet is a last packet of a data set, determining whether all packets have been received" after checking the last packet position in the receive buffer pre-load engine checks whether all packets are received (Fig. 1, col. 4, line 66 to col. 5, lines 19). Finally, Boyd teaches the claimed step of "if the data packet is the last packet and all packets of the data set have not been received, sending a SNACK message to said source device, indicating which packets are missing" as the selective acknowledgment protocol informs the beginning and ending sequence number of a contiguous group of packets it received (Fig. 1, col. 12, lines 24-29). Thus, it would have been obvious to one of ordinary skill in the data processing art at the time of the invention to combine the teaching of the cited references because Boyd's teachings would have allowed Callon's method for determining whether all packets are received and to reorder packets which were not received or defective for efficient buffering and reordering of in bound network traffic (col. 2, lines 10-12).

17. As per dependent claims 5, 10, 16 and 21, Boyd teaches the claimed step of "communication medium is a computer network communications medium and said sequence numbers are iSCSI sequence numbers" as processes executing on computers access internet protocol network through upper level protocols such as iSCSI (col. 1, lines 28-30 and col. 12, lines 14-23).

Allowable Subject Matter

18. Claim 3, 6, 11, 14, 17, 22 and 24 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sathyanarayan Pannala whose telephone number is (703) 305-3390. The examiner can normally be reached on 8:00 am - 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Breene can be reached on (703) 305-9790. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only.

For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Sathyanarayan Pannala
Examiner
Art Unit 2177

srp
September 3, 2004